DOCUMENT RESUME

ED 270 200 PS 015 781

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TITLE Bonding: Mothering Magic or Pseudo Science: A Critical Review of Some of the Research in the Area. Selected Papers Number 40.
INSTITUTION Foundation for Child and Youth Studies, Kensington (Australia).
PUB DATE 85
NOTE 27p.; For other papers in this series, see PS 015 778-783.
PUB TYPE Information Analyses (070) -- Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Attachment Behavior; Breastfeeding; Child Abuse; Child Neglect; Foreign Countries; *Mothers; *Parent Role
IDENTIFIERS *Australia; Conceptual Analysis

ABSTRACT

This article commences with a review of the issues in the empirical literature surrounding the concept of 'bonding,' and notes some particular parallels with the concept of 'attachment,' demonstrating links between the two. The comparison is followed by a review of empirical findings of studies involving animals and humans, including those dealing with methodological problems of the research as well as practical issues such as breast feeding and child abuse and neglect. Implications of the bonding doctrine are then discussed. It is concluded that, since almost one half of Australian married women are in the workforce, practical considerations in addition to empirical issues argue for promoting the concept of 'parent love' rather than that of 'mother love.' A five-page reference list is appended. (RH)

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# Selected Papers

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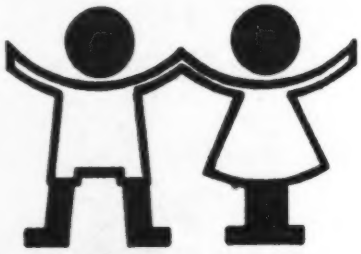

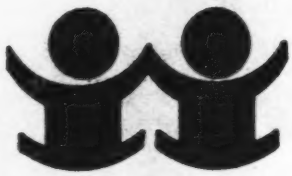

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**BONDING: MOTHERING MAGIC OR PSEUDO SCIENCE**
A Critical Review of Some of the Research in the Area
by Dr Deidre James

ISBN 0727-6834

# BONDING: MOTHERING MAGIC OR PSEUDO SCIENCE

## A Critical Review of Some of the Research in the Area

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## INTRODUCTION

Whilst there is some dispute about the genesis of the concept of mother love, there is no dispute about its social importance at least as far back as the mid-eighteenth century (Schutze, 1985). Maternal love, often under the label of "maternal instinct", currently contains two apparently conflicting elements. On the one hand, its very designation as "instinct" suggests that it is both a biologically natural and inevitable consequence of female parenthood. On the other hand theories of maternal infant attachment of the 1940s and 1950s, and of maternal bonding of the 1970s pointed up some of the problematic aspects of the initiation and maintenance of mother love, suggesting the importance of environmental (i.e. non biological) elements in successful mothering.

The bonding concept is currently fashionable and influential in Australia, and is often mentioned in articles and other publications dealing with childbirth and/or parenting; e.g. Oates (1982) has several chapters dealing with an appraisal of the issues surrounding bonding and attachment.

The quote below by Winnicott (1958) identifies some of the historical roots (Winnicott is well known for his benign notion of "good enough" mothering. The reference here is to the manner in which his work (among others) has conceptual links with bonding theory, made explicit by current bonding theorists.):

> "It is my thesis that in the earliest phase we are dealing with a very special state of the mother, a psychological condition which deserves a name, such as Primary Maternal Preoccupation.
> ... she (i.e. the mother) must be able to reach this state of *heightened sensitivity, almost an illness,* (italics mine) to recover from it. (I bring in the word "illness" because a woman must be healthy in order both to develop this state and to recover from it as the infant releases her. If the infant should die, the mother's state suddenly shows up as illness. The mother takes this risk.)."
> (See Kennell & Klaus, 1984, p 280, and Note 1 at end of article for fuller discussion)

In using these words of Winnicott's in the defense of their bonding doctrine, Kennell and Klaus (1984) demonstrate the clear links between the 1970s bonding concept which they formulated, and the prior theorising of mother/child relationships dating back three decades, and more. In fact, Kennell and Klaus make explicit such a historical connection, by aligning their maternal sensitive period (the critical state and time for bonding to occur) with Winnicott's concept of primary maternal preoccupation:

> "It is interesting that the timing and course of Primary Maternal Preoccupation are similar to those described for the maternal sensitive period." (1984, p 281)

The point has been made elsewhere (James, 1985) that the bonding doctrine was initially promulgated around the same year as the first sustained critique of attachment (Rutter, 1972) and that it took over many of the values and beliefs implicit in the concept of attachment. Klaus and Kennell's formulation of bonding is well represented in their popular book of 1976 where they state:

> "There is a sensitive period in the first minutes and hours of life during which it is necessary that the mother and father have close contact with their neonate for later development to be optimal." (p 14)

The purpose of a previous paper (James, 1985) was to present a practical exercise for students aimed at an experiential analysis of parenting, and the point was made therein that, although the initial formulation of bonding specifies mother and father, almost all of the subsequent research in the area has been conducted on mother/infant contact. The main thrust of the approach is thus confined to mothers. The real crunch of the bonding doctrine and that of special interest comes in the delineation of the practical consequences surrounding the failure of the bonding process, since it is claimed that mothers who do not have the requisite body contact to produce bonding may become deficient in parenting for months and even years (de Chateau,1980; Klaus & Kennell, 1976; Sugarman, 1977; Trause, 1981). These deficiencies include the potential for child abuse and neglect: a grim prospect for the individual, the family, and for society.

A notable element in Winnicott's formulation is that of mother-love as akin to illness; that these very words of Winnicott's are a part of the description used by Kennell and Klaus is significant. They convey a model of female behaviour which suggests that optimal female performance is achieved in a borderline disordered condition. This leaves women in a particularly vulnerable position; whilst being allocated peculiar powers, apparently it becomes necessary to become "sick" in order to realise them fully. How often have women been denigrated by labelling them emotionally weak, or emotionally labile?

Because the publications of these authors have been highly influential and because of the serious consequences predicted for the failure to bond, thoughtful parents and professionals will be forced to examine this doctrine extremely carefully. This article, therefore, commences with a review of the issues in the empirical literature surrounding bonding, and notes some particular parallels with attachment, in further demonstration of the links between the two concepts. This comparison is followed by empirical findings with animals and humans, including those dealing with practical issues like breast feeding and child abuse and neglect. The implications of the bonding movement are then discussed.

*BONDING AND ATTACHMENT*

*Similarities and differences*

*Bonding* refers to the special relationship held to develop between mother and child, but particularly from the mother to the child when certain optimal circumstances prevail. This bonding, in the initial formulation by Klaus and Kennell (1976) was believed to occur when there was close skin to skin contact between infant and mother immediately after birth, and depended upon the existence of a "sensitive" period, in the mother, for its development. *Attachment* is conceptualised as a 2-way process, i.e. it is seen predominantly as an interactional relationship between the mother and the child. As Bowlby (1972) used the term in the 1950s and 1960s, it referred to a process which generally became apparent when the baby was around six months of age; the height of attachment was seen as occurring around nine months as evidenced typically by high stranger anxiety at this time. It, therefore, differs from bonding which is seen essentially as one way (ties of mother to child) and as occurring straight after birth (not 6 months later).

This being said, it should also be noted that in popular writing and conversation, and even in the literature in the area, the two terms are sometimes used interchangeably and confusingly. This may be due either to ignorance; or to their apparent functional equivalence; or to an emotionality about the topic which leads to a collapse of distinction between the two concepts, when both become subsumed under catch phrases like tender loving care (TLC). However, the two are conceptually distinct and should, therefore, be treated as such.

Nevertheless, there are strong similarities and these should also be noted.

1) They are both seen as *essential to the proper development* of the child, by their proponents. For instance, Klaus and Kennell (1976) warned that interruption to the bonding process made the occurrence of various aberrant forms of parental behaviour more likely; and that child development is more likely to be suboptimal: that is, there are undesirable effects for both parent and child. Since almost no one would quibble with the goal of optimal happy development in children and loving care from parents, this is a potent emotional appeal in support of the case. Similarly, for Bowlby (1972), attachment was seen as the prototype on which all other affectional relationships were based and, as such, was crucial in the development of the child - "spoiled" attachments lead to "spoiled" adults who could not sustain relationships with others in later life.

2) They are both seen as occurring at a *crucial age point* in development; if this does not occur at the right time, the essential effects which flow from the successful formation of bond or attachment may never occur. In this way, the processes are seen not only as essential, but also as fateful, almost irreversible. Klaus and Kennell (1976) claim, for instance, that their research indicated that extraordinary efforts may be necessary to overcome the effects of early separation of infants and mothers and that ill effects and deficiencies in mothering may exist years later; a frightening prospect indeed.

3) A further similarity derives from the *long term outcomes* claimed by these studies. It is stressed that early and extended contact enhances the reciprocity in mother/infant interactions ensuring positive maternal/infant relationships and *reducing* the potential for *child abuse and neglect.*

4) They also both stress, in their practice, the *centrality* of the mother. Note that this is in their practice; the formulations often refer to parenting; however, "parent" in the singular is always female (just as "baby" in the singular is invariably male). Although there is lipservice to mothers and fathers, there is no mention of studies by the original proponents, where the father is brought into "skin-to-skin" contact at birth. The genderisation of the persons in this way is, therefore, not accidental, but highly indicative of a particular viewpoint. In response to the criticism of the sexist bias of this aspect of the theory, adjustments are sometimes made, e.g. Klaus and Kennell changed the title of their 1976 book from "Maternal/Infant Bonding" to "Parent/Infant Bonding" for the 1982 edition.

5) When their findings are put into practice, they both use the *biological* mother as the criterion and apostle of true motherhood; adoptive and foster parents and other child carers as occurs in the pattern of care of the extended family, common in other cultures, implicitly become second rate in the operationalising of the theories. An example of this can be seen in the following recent popular Australian handbook on child rearing where Harris (1983) writes;

> "'Unbonded'. The baby who was unable to bond with his mother in the obstetric hospital in the first few days of life due to admission to a special nursery, usually because of prematurity or illness, may be rejected. Adopted children do not have the same opportunity to early bonding." (pp 146-7)

But, in another section of this book we find the following:

> "The current views are summarised by Schaffer. Do babies need mothers" Yes - if it means that they need to be involved in a love relationship, that satisfaction of their physical wants alone is not enough. No - if it means that the mother must be the one who gave birth, that no other person can take her place.
>
> No again - if we take mothering to involve an exclusive care relationship that must encapsulate the child's total social and emotional life; on the contrary, there are many arguments for allowing a child to widen his interpersonal horizon from the beginning and for not discouraging other attachments. And finally yes - if we mean that a limited range of familiar people should provide consistent care throughout the years of childhood." (p 98)

There seems here to be a "bet each way", but with the odds certainly weighed against adopting or fostering parents.

Note also that this reverses the direction of the bond from that proposed in the original formulation, to that of infant to mother. This is then implied as the reason for rejection (rather than the mother

initially not bonding to the infant).

6) Both theories implicitly assume *extensive availability* of this mother in order that the bonds, once established, are satisfactorily maintained. The models are couched in terms which thus preclude not only single and/or working mothers, and those who are economically disadvantaged from appropriate patterns of maternal care, but in the reality of time constraints and lack of household help these days, assume that mothers have preferably single or at the most, two children for whom to care. Thus, additionally to the ethnocentric and sexist elements, it can be argued that there is a class bias implicit in the approaches.

*Theoretical considerations*

Placing the bonding concept in its historical setting alongside that of attachment suggests some difficulties which hard examination will bring to light. As happened with attachment theory, overseas critiques now appearing (Lamb & Hwang, 1982; Myers, 1984; Sluckin, Herbert & Sluckin, 1983) (see Note 2) are looking closely at methodological difficulties in the research studies said to support bonding. These methodological problems appear when faced with the fundamental question: how can bonding be measured? If bonding is the process underlying the forging of an affectional tie, how can this process be operationalised? It may be easy to postulate a disturbed mother/child or parent/child relationship after child abuse has actually occurred; but to simply assume that this is due to inadequate bonding is to beg the question. This difficulty, i.e. the problem of operationally defining such a concept will become clearer as the research in this area is discussed. (Some analysts of child abuse behaviour do not subscribe to the view that abusing parents are those not properly "bonded" to the child, citing the extreme anguish after an attack which is experienced by some adults, and their seeking of help, despite possible reprisals, in preventing further attacks on their children.)

Claims of a sensitive period for bonding reflect a belief that the hormonal events of pregnancy and delivery biologically "prime" the mother for maternal behaviour. The idea that this sensitive period is both crucial and relatively short derives from knowledge of "imprinting" which, in turn, derives from ethological studies of animals; the process which leads the young of certain species to follow the mother after birth. It can be demonstrated quite simply that this process is easily disturbed in certain animals if the natural mother is not available at the critical time - the newly-hatched duck or gosling will follow the closest moving object in its environment. "Bonding", however, as noted earlier, refers to the *mother's* reaction to her young - but is seen as a parallel to imprinting, which is a process in the young, affecting its behaviour towards its parent.

Myers (1984) comments that scientific interest in the bond between mother and young probably developed in response to observations made by farmers. Lamb and Hwang (1982) claim its roots in early experiments on rats, sheep and goats where adult females seem to recognise their own young by smell (known as "olfactory imprinting") and reject the young of others. However, Kennell and Klaus (1984) claim that their interest arose from their clinical, i.e. paediatric, experience with human mothers. There is no doubt that pregnancy and birth involve dramatic hormonal changes, in many species. Animal studies relevant to bonding received an extensive review in both Lamb and Hwang (1982) and in Rosenblatt and Siegel (1981), to which readers are re-

ferred for full information. Some of this material is summarised below to show how findings in the animal literature have fed into ideas of appropriate human parenting practices.

*EMPIRICAL STUDIES*

*Studies with animals*

Lamb and Hwang divide the animal studies into those with primates and non-primates, which further subdivide into rodents (rats and mice) and ungulates (sheep, goats, cows). Referring to rodents, Lamb and Hwang note that proof of the importance of hormonal changes can be demonstrated by transfusing blood from parturitional females to virgin females (e.g. Terkel & Rosenblatt, 1972) and showing a dramatically decreased time (from 5-10 days to only 15 hours) in the eliciting of maternal behaviour. However, stimulation by pups rather than endogenous hormonal change is needed to sustain maternal behaviour - without this, the responsiveness diminished (Rosenblatt, 1970). If pups are removed on delivery and later returned, maternal behaviour is not displayed although it normally returns if the separation occurs 3-4 days after delivery (Rosenblatt & Lehrman, 1963). But, several studies show some mice behave differently from rats, e.g. display maternal behaviour after minimal exposure to pups (e.g. Carlson & Thomas, 1968). If it is not possible to generalise from one rodent species to another, Lamb and Hwang note that generalisation to humans is questionable.

With respect to ungulates, they comment that many studies show that removal of animal young from mothers at birth leads to rejection at reunion 2 hours later, whereas even 5 minutes of contact after birth can ensure reacceptance. Sometimes mothers will reaccept their young after a period of time together after traumatic removal at birth. These findings suggest a brief sensitive period immediately after birth where olfactory identification of young is made, and animals begin maternal behaviour. Unlike rodents, ungulates "imprint" on specific young; maybe because their young are perceptually and motorically competent at birth and can approach other mothers for feeding. This competence plus the fact that they usually live in herds rather than in isolation from other adults as is common in rodents, suggests the need for different adaptive behaviours across species.

Moving closer on the phylogenetic scale to humans, they note that with respect to non-human primates, little is known of hormonal correlates of early maternal behaviour. Anecdotal accounts of *captive* primate mothers describe confusion at delivery, often followed later by competence; initial incompetence is not clearly understood and may be a consequence of the captivity. Although primate males are not usually involved in parenting, this differs for example for marmoset fathers, who carry their firstborn infants from birth except when they are being nursed; later-borns are tended by both father and older sibs. In general, nonmaternal caretakers are more involved when the pair is monogamous or groups are stable. Thus, it seems that hormonal events are not critical in the initiation of parental behaviour, at least in some primate species, and patterns of parental care are affected by the social organisation and ecology of the species. Note again, the dangers of generalising from one species to another. For mammals, "critical periods for the initiation of maternal behaviour are the exception rather than the rule, and neither human social organisation, nor econology, nor the characteristics of human infants resemble those of the species where sensitive periods do occur" (Lamb & Hwang, 1982, p 7). The importance of hormonally, or genetically determined behaviour patterns decreases as we ascend the phylogenetic hierarchy. At best hormones may facilitate (not determine)

human behaviour. Lamb and Hwang make the point that among mammals, *only* in ungulates is there a narrow sensitive period during which the mother learns the characteristics of her own young, thereafter responding selectively to it. Humans do not share the precosity and social organisation of ungulates; human young are so incompetent motorically that pressure to develop quick maternal recognition and imprinting is not likely to have evolved for survival. Further, maternal behaviour in rodents and ungulates is highly stereotyped and shortlived, pointing to biological determinants; in humans this differs in that young humans require a long process of socialisation; their parents do far more than nourish, warm and protect them and parental care is extremely variable. It is, therefore, "unlikely that so complex and plastic a behaviour as human parenting would be narrowly and critically dependent on hormonal triggers and preorganised behaviour patterns" (1982, p 9). There is thus no reason to believe that a brief sensitive period would be adaptive in humans, and no studies so far exist to demonstrate a hormonal basis for maternal behaviour in either humans or other primates (Lamb & Hwang, 1982; Myers, 1984). In final evaluation of the evidence, Lamb and Hwang suggest that no strong grounds exists in animal studies to support either *(1)* the importance of hormonal triggering for humans or *(2)* a critical or sensitive period after birth for "imprinting" on young.

We will now turn to the results of studies using human subjects.

*Studies with human subjects: the concept*

What does the work with human subjects show about bonding? Empirical investigations began with Klaus and Kennell's original studies of the 1970s where a small number of cases were eventually followed up over a 5-year period. Klaus et al (1972) used a group of 14 lower class, primarily black mothers of full term, healthy infants, matched with a comparable group of 14 for various social and physical attributes. The experimental group received early and extended contact with their babies after birth (one hour skin-to-skin contact within 2 hours of birth; extra 5 hours of exposure to babies for next 3 days) compared with the routine exposure of the control group (a glance at birth; short visit 6-12 hours later; 20-30 minutes feed every 4 hours during day).

Infants and mothers were observed at 1 month in the initial study, with no note made then by the experimenters of whether observers were "blind", (not informed of group membership for experimental manipulation) or not, although a recent article (Kennell & Klaus, 1984) notes that they were blind. Some maternal behaviour by experimental group mothers at that time (more watching the physical examination; more soothing behaviour when infant cried) was interpreted as stronger bonding by these mothers compared with controls. A subsequent 1 year follow-up using half of the original sample (Kennell et al., 1974) showed very little difference between the two groups; viz. only four measures yielded differences out of many (but a not precisely specified) number of measures. These differences, which again included maternal watching of physical examination of the baby and reported missing the infants more on return to work, were again interpreted as showing stronger "attachment" by the experimental mothers. The groups (by this time comprising 9 experimental, 10 controls) were again tested at 2 years (Ringler et al, 1975). In summary of the intelligence, language and behavioural tests which were conducted, there were some linguistic differences between experimental and control mothers at the 2 year follow-up (experimental mothers used fewer content words, per proposition than did the control group) and at 5 years the experimental group children showed language and IQ correlation with maternal linguistic behaviour at 2 years (Ringler et al, 1978).

However, the difficulty noted above of the validity of these measures for the concept of bonding becomes apparent. Myers (1984) notes Ross' (1980) comment on the finding of greater physical proximity during the paediatric examination, which may be due to the greater confidence the mother has in her maternal behaviour in front of professionals, given the earlier encouragement from medical professionals. Whilst this may be a good thing in itself, it may have nothing at all to say about the strength of bonding of the mother to the infant. Ross even suggests it may indicate overprotectiveness rather than bonding. This is a very nice illustration of the problem of the relationship between operational and conceptual definitions. Similarly, how can the maternal linguistic variables be reliably interpreted as related to bonding? The connection is far from obvious.

Additional to this prime difficulty is the lack of statistical sophistication in the treatment of results, e.g. the use of univariate rather than multivariate analyses for a larger number of variables particularly when considering the small sample, let alone the inherent bias in the choice of sample. As well, there are other possible methodological problems. Kennell and Klaus (1984) have clarified the reporting of their original methodology and claim that possible halo effects from the extra time devoted to the experimental mothers were controlled for by being "meticulous about providing equal amounts of nursing time and investigation time with the mothers in both groups"(p 278). There are possibly still some difficulties here, however, since, as their original (1972) paper described it, the special research nurses who cared for the control mothers during the extended contact period "answered questions, did not instruct any of the women in caretaking unless this was requested, *and most of the time were available just outside the room*" (p 461, my italics). There could thus still be some effect from the difference between interacting with a supportive nurse (experimental group) and having a nurse available "just outside the door". Ideally, for equivalence, the nurse would need to interact with the mothers of both groups for the extra time of the extended contact group, so that the sole difference between experimental and control mothers is the amount of time they themselves spend with the infant.

Overall, the findings of this series of studies for the bonding concept must be seriously questioned. Both Lamb and Hwang (1982) and Myers (1984) offer further reviews and critiques of other bonding studies, including those conducted in Sweden (de Chateau & Wiberg, 1977b; de Chateau, 1980) and a study involving Kennell which was conducted in Guatemala (Hales et al., 1977). In summary, the same pattern of finding emerges, i.e. that there are a few differences among many measures, and their connection with bonding is, at the best, speculative and tentative. Myers further notes a Canadian study by Kontos (1978) and a study by Peterson and Mehl (1978). The Canadian study supported the view that both early contact, and "rooming in" facilitate maternal bonding, although Kontos was not blind to the group membership of his subjects and, therefore, this study has some methodological drawbacks. Peterson and Mehl demonstrated that separation per se was not predictive of attachment when the analysis was done separately for the groups (natural childbirth in hospital, natural childbirth at home, childbirth with anaesthetic), although it was important when the groups were combined. It remains unclear, from the reporting and analysis of this study, whether the obtained effects were due to the separation per se, or to the type of birth. The confounding of these two possible effects is of crucial importance to the hypothesis.

Despite the methodological difficulties of these studies, it is still possible to claim that the bonding concept may have been supported, to some extent. Studies have been conducted which have failed in such support, and attention now turns to these.

The next three papers were all presented to the Society for Research in Child Development in San Francisco in March 1979 and are more extensively reported in both Myers (1984) and Lamb and Hwang (1982).

In a close but more carefully controlled replication of Klaus and Kennell's work, Taylor, Taylor, Campbell, Moloni and Dickey (1979) found in their study of 100 primaparous mothers that extra contact at birth had no demonstrable effects on measures taken at infant ages 2 days or 1 month. These measures included staff report of degree of maternal attachment, amount of time spent with the infant in hospital, and maternal perception of infant at both 2 days and 1 month. There was some better interaction during feeding but only for mother/male infant pairs. On an 8 months follow-up (Campbell et al, 1979) there were no differences between high contact and routine contact mothers in terms of the maternal ratings of infant temperament. Lamb and Hwang (1982) in commenting on this finding of "no difference" make the point that mothers in both groups had some early contact, although contact was brief for the control group, whereas it lasted for one hour for the experimental group. It was also with clothed babies in both cases: if nakedness itself is a crucial factor, it was not tested in this study. (It was not recorded whether there were any naked fathers present at the time.) In a further follow-up of the same group (Ottaviano et al, 1979) no differences emerged between controls and 25 of the high contact infants on security of attachment.

In sum, neither the first two studies, which concentrated on maternal effects, nor the third study which concentrated on infant effects, yielded results convincing for the bonding hypothesis. This latter study, however, should be considered in conjunction with others designed to investigate whether the effects of early contact/separation influence later infant attachment. Rode, Chang, Fisch, and Stroufe (1981) tested 24 infants between 12 and 19 months old who had prolonged stays in intensive care units after birth. Hock, Coady and Cordero (1973) tested 31 premature infants who averaged 40 days hospitalisation after birth when they were about 11 months of age. These investigations found no difference in infant attachement as measured in the Strange Situation between the separated group and their normal controls. Grossman, Grossman, Huber and Wartner (1981) varied timing and amount of contact for 54 normal birth infants and found no connection between early or extended contact and the infants' attachment to mothers at 12 months.

Myers (1984) underscores the point made earlier in this paper, that the theoretical status of the two concepts of bonding and attachment differs:

> " ... bonding and attachment are two different things. They are different by definition, and the results of the above studies suggest that the early contact which is purported to influence maternal bonding does not show an effect on later infant attachment." (p 263)

Returning to investigations concentrating on maternal effects of contact with infants, a carefully controlled USA study of 30 primaparous lower middle class mothers (Svejda et al, 1980) failed to yield differences between extra contact and control mothers. These extra contact mothers also

had extended contact with their infants; as well as extra exposure at birth, feeding was prolonged from the normal 30 minute period, to 90 minutes. This study involved a number of necessary procedural controls, including highly trained observers blind to group membership of the mother/infant pairs; and equivalent treatment for the room mates of extra-contact mothers in order to control for effects of perceived special attention. Observers scored videotapes of the mother/child dyad made about 36 hours after birth; 10 minutes interaction plus 15 minutes breast feeding, on 28 different measures. None of these yielded group differences either separately or pooled into 4 general response categories. When the sex of the baby was included in the analysis, extra contact mothers talked more to female babies (support for the bonding hypothesis) but control group mothers touched females more and held males more in the "en face" position (against the bonding hypothesis). The study's overall findings of lack of support for the bonding hypothesis are worthy of consideration because it was well controlled and conducted.

A further, more extensive study (Siegel et al, 1980) noted by Lamb and Hwang as one of the earliest attempts to test both early and extended contact and by Myers as being well planned and methodologically careful, also failed to support the hypothesis. It examined 321 low-income mothers and infants for effects of both early and extended contact, and home visits (9 visits up to 3 months) by a health care professional. Treatment groups were randomly assigned. Data were collected at 3 different points (last 12 months of age) and by interview, observation and from hospital, health and welfare records. Collectors were blind to group membership. There were 30 specific behavioural items and 92 ratings. Analysis of the results showed that two intervention treatments, i.e. both kinds of contact plus home visits, accounted for only 2-3% of the variance (a significant, but extremely small amount) in maternal attachment scores to the infant at 4 and 12 months. Far more important were maternal background variables of race, marital status, education, age and verbal score. Furthermore, the interventions were unrelated to infant abuse and neglect and to health care utilisation although Siegal (Oates, 1982) comments that this may be because intervention generally did not go far enough (see p 97). This study supplements the findings of those above which investigated infant attachment subsequent to early and/or extended contact, by examining maternal attachment subsequent to contact.

Two recent papers have continued interest in this area. In a study using the matched pair techniques (Minde, Perrotta & Marton, 1985), 20 premature infants were matched with 20 full term infants on several maternal and social background variables. The premature babies were very small, and averaged 73 days hospitalisation (and thus considerable separation) in comparison with the 4-5 days hospitalisation for the full term babies. Both groups were studied during feed and play at 1, 2 and 3 months after the expected birth date. Although there were some interactional differences between the two groups of mothers, the investigators reported that almost all mothers on both self-report and observation, were enjoying their babies. Although the concerns of the two groups differed somewhat, there seemed to be a "washing out" effect of prematurity: the pre-term mothers became more assured as the months went by, whereas the full term mothers expressed an increasing number of worries over the months. This study's particular strength lies in matching very carefully the background variables for the 2 groups which show as important in other investigations; and in finding only small effects when this is done. Another paper (Wasserman & Allen, 1985) also found small, or no, effects of prematurity, this time tested when the infant had reached 2 years of age. Videotapes of free play of mothers and infants showed similar patterns of attention between mothers of the 14 premature and the nine

healthy two year olds, with only one mother in the larger "premmie" group showing some ignoring of, or maternal withdrawal from, her infant.

*Studies with human subjects: practical issues*

By now, the difficulties for the bonding concept which surround the evidence of the kind which can be collected in such empirical work should be apparent, although more extensive reviews of this evidence may be pursued in both Myers (1984) and Lamb and Hwang (1982) for those who remain sceptical. Practitioners working in the areas of child and maternal health and welfare and parents, particularly mothers upon whom the major burden of child rearing inevitably falls, will still be concerned about the practical questions around the bonding controversy. These normally formulate in fairly concrete terms, e.g. what are the effects on: breast feeding, child treatment, child neglect and/or abuse, other kinds of mother/child disturbance and even infantile autism, of early contact with new-born infants. These questions have received attention from reviewers; Myers (1984) and Lamb and Hwang (1982) for breast feeding implications; Myers and Sluckin et al (1983) for child abuse; with Sluckin et al offering a wider ranging treatment of bonding and later behavioural problems like disturbance in the mother/child relationship, failure-to-thrive infants, and infantile autism. This book also devotes some discussions to the other practical issues of fostering and adoption.

The least controversial of the above list is probably breast feeding since relevant social consequences of a failure to breast feed per se have not been demonstrated, although supporters of breast feeding often claim that there are physical and psychological health consequences.

*Breast Feeding*

There have been claims by several researchers, of a link between early contact and both incidence and length of breast feeding (Klaus & Kennell, 1976; Sosa, Kennell, Klaus & Urrutia, 1976; Winters, 1973). In fact, effects on breast feeding are considered to be among the best documented consequences of early contact (Klaus & Kennell, 1976) but as Lamb and Hwang comment, the effects are really far from clear. Sosa et al (1976) conducted three separate but identical studies on a total of 160 poor, urban, Guatamalan women. Control groups were randomly selected and first received their infants either 12 or 24 hours after delivery, depending on the routine procedure adopted in the particular hospital they were in. Experimental group mothers received their infants for skin-to-skin contact immediately after birth for a period of 45 minutes during which they were encouraged to breast feed. All babies subsequently received the same treatment, i.e. nursery care except for feeding periods, until discharge from the hospital.

On testing at infant age of 12 months, one study found longer breast feeding for the control group and two studies found longer for the experimental groups; but in one of these, the difference was not significant. In the study where the experimental group breast fed significantly longer than the controls, the effect was accounted for by the control group's feeding for shorter duration than was the norm in Guatamala, while the experimental group fed marginally longer than normal. In all three studies, early contact infants had fewer infections. Even this finding is difficult to incorporate into a coherent system of explanation, however, as most supporters of breast

feeding claim fewer infections for breast-fed than non breast-fed infants.

This positive effect of breast feeding is usually attributed to two influences; firstly, there is less opportunity for gastrointestinal infection, particularly in circumstances where hygiene standards and availability of effective sterilisation is low; and secondly, there is more protection through transference of immunity for other diseases from mother to baby. Here, however, we have an inconsistant relationship between breast feeding and infection, but a consistent one between early contact and infection. Overall, therefore, the findings of these studies remain difficult to interpret and, in any case, cannot be said to support the claimed connection between early contact and breast feeding.

Myers reports three other studies which did find such a connection. However, they are not free of problems of one kind or another. Winters (1973) obtained a fairly dramatic effect between mothers with early contact and those with late contact (16 hours after birth) with their infants. All early contact mothers, compared with only one late contact mother, were still breast feeding their infants two months after birth. However, this was a very small study with only six in each group and is thus, necessarily, limited in its generalisability.

In a much larger Brazilian study of 100 full-term infants Sousa et al (1974) found that 77% of early contact mothers, compared with only 27% of late contact mothers, were still breast feeding at infant age of 2 months. However, this investigation shares some of the confounding effects noted above as problematic in the interpretation of findings in other studies. Control and experimental group mothers received different treatment beyond the variation of time of first contact with their infants; including a special nurse working with, and encouraging breast feeding, plus the provision of rooming in, for experimental group mothers.

Another series of investigations (de Chateau 1980a, 1980b) reported longer duration of breast-feeding for early contact boy babies (although not for girls) as measured at infant age of 1 year. This investigation was conducted on 42 primaparous middle class Swedish mothers and infants varying early and late contact (15 minutes of skin-to-skin contact and suckling about 10 minutes after birth *vs* routine hospital treatment). Measures were taken at 36 hours, 1 year and 3 years postpartum by observers blind to group membership. Also, home observations and interviews were conducted at 3 months postpartum. These investigations cannot be cleared of two major problems.

Firstly, there were confounding effects similar to those mentioned in studies above, with experimental group mothers having more attendance at ante-natal classes and more midwifery encouragement for breast feeding, than had controls. Secondly, there were statistical weaknesses in the analysis of the data. For instance, of the 3 months' study, Myers (1984, p 251) notes that a total of 366 separate t-tests were performed on the 61 behavioural measures taken; and although 16 significant differences were found, this is less than would be expected due to chance alone, not more, as de Chateau claims. Therefore, the longer duration of breast feeding for early contact boy babies reported at 1 year in this series, has to be viewed with caution with respect to support for the hypothesis.

Finally, two other studies found no difference in duration of breast feeding between early and late contact mothers (Ali & Lowrie, 1981; Carlsson et al, 1979), although Ali and Lowrie did find that late contact was associated with more supplementary feeding.

In summary, the strongest statement which appears warranted by the evidence, is that there may be some link between early contact and breast feeding, although even here the findings are somewhat inconsistent. However, there is no demonstrated link between breast feeding and successful "bonding" of the mother, however that is measured.

*Child abuse and neglect*

The controversial areas of child abuse and neglect are the ones likely to be of most concern to parents and child care professionals because of their consequences, including possible long-term effects on the child (see Note 3). Some disturbing material has implicated mother/infant separation, in initial findings that child abuse is disproportionately high among premature infants who spend long periods of time in a separate neo-natal nursery. Studies on abuse show incidences as high as 40% or even 45% of premature births in their battered or neglected samples (e.g. see Myers, 1984, p 256) - note, however, this does *not* mean that 40% of premature infants are battered). To give some perspective to these figures, a Canadian study (Klein & Stern, 1971) showed 24% of its battered sample to be low birthweight, against an approximate 8% incidence of low birthweight in the population. This suggests an incidence of battery three times higher among low birthweight babies than among normals and a British study (Patton & Gardner, 1962) suggests four times higher. Certainly, studies in Britain and the USA and Australia (Elmer & Gregg, 1971; Klein & Stern, 1971; Lynch et al, 1977; Oates, 1982) have indicated this increased vulnerability of the premature baby. Given the usual routine of separation from these infants, it is a simple connection to relate battery with separation in an apparent (but indirect) support of the bonding hypothesis. However, it should be emphasised that there are alternative, equally plausible explanations to that of inadequate bonding at birth. At least two of these noted by Myers, should be mentioned: firstly these babies may be more difficult and less lovable in themselves, i.e. they may create parental stress which then leads to abuse or neglect; and secondly, there may be an intrusion from a third factor, i.e. socio-economic status (SES). Looking at the first of these possible alternatives, abuse is demonstrably related to parental stress; e.g. Gaines et al (1978) found it to be the best predictor of child abuse, and Pasamanick (1975) in a large longitudinal study of 500 premature and 500 full term babies, suggested that premature children are more disorganised, unstable and have lower stress thresholds. Green, Gaines, and Sandgrund (1974) claimed that poor infant response to nurturing, among other factors, could lead to stress in parents and subsequent battery. It is, therefore, not difficult to see a possible connection between prematurity, -child stress, -parent stress, -battery.

Examining the second possible alternative, i.e. that there may be the intrusion of a third factor, SES, it can be demonstrated that prematurity is more frequent in lower SES groups (e.g. Gil, 1970; Kopp & Parmelee, 1979) so abuse may be better related to the multiplicity of factors encompassed by class, rather than be separation at birth.

These possibilities notwithstanding, what studies may be mustered which have examined the question of early contact/bonding and the subsequent abuse or neglect of a child?

A longitudinal USA study (Egeland & Vaughn, 1981) kept data on 267 lower income women in Minneapolis throughout their pregnancy and until 9 months post partum. Of these, the 33 "best" care mothers and 32 mothers who abused or neglected their infants were selected. In a comparison of these two groups, there were no differences in events thought to be related to bonding; no difference in incidence of prematurity, delivery complications, medical difficulties precipitating separation of mother/infant, or physical abnormalities. The importance of this finding derives primarily from its care in investigation; being longitudinal, it employs a prospective rather than retrospective method. This means that the data has not been "tainted" by the knowledge of subsequent events, when it has been gathered. Such biassing is a very serious research problem which often exists in many studies of human difficulties around which strong emotions flow. Both researchers and respondents may contribute to this; the researchers by seeking some explanation for a highly counter-intuitive or antisocial event, like child abuse, which will fit in to a systematic explanation of human behaviour; and the respondents who are often seeking a way to understand what they themselves have done. Egeland and Vaughan (1981) comment that there is no evidence offered in retrospective studies of abuse, either that a bonding problem ever existed; or that such potential bonding problems are the cause of later abuse and neglect.

An experimental study which randomly assigned families to different contact conditions at birth, followed them for subsequent parenting failure (O'Connor, Vietze, Sherrod, Sandler & Altemeier, 1980). There were 143 infants in the rooming-in condition (about 11½ hours maternal contact per day) and 158 with routine post partum contact (about 2 hours contact per day); neither group had contact earlier than about 7 hours after birth. Data was gathered when the infants averaged 17 months of age and showed abuse or neglect in 10 control, and 2 rooming-in families and thus indicates a possible effect from extended contact. However, the rooming-in mothers were also able to have virtually unlimited visiting from the baby's father or grandmother, which control mothers did not have. The treatment effect may, therefore, be a mirror of the possible consolidation of the family unit, rather than maternal contact per se; this possible confounding factor cannot be separated out. It should be emphasised that in any case, this was a test of extended, not early, contact.

A further large-scale investigation (Gaines, Sangrund, Green & Power, 1978) drew 240 mothers from known-abuse, neglect and normal populations. A multivariate analysis showed that infant risk, which was calculated on the basis of neonatal complications requiring hospitalisation was not a successful discriminator for abuse. This study was quoted above, as showing that parental stress was the best discriminator of abuse. Again, there is no support for the connection between contact/no contact and subsequent "bonding" because of this.

Collingwood and Alberman (1979) used 32 low birthweight babies and 32 controls in an attempt to identify long-term effects on mother/child interaction following separation at birth, and failed to find a connection. Although Cater and Easton (1980) found that separation at birth was a fairly common experience in their sample of 80 abused children, combinations of other stresses and dilemmas were also present, e.g. unstable domestic arrangements, psychiatric disturbance, and parental "immaturity", making it not possible to attribute causality to any one event, including maternal/infant separation.

Finally, a recent study of 38 low SES mother/infant dyads (Crittendon, 1985) showed once again, no relationship between the congenital condition of the infant, which included physical disability, low birthweight, and premature or

caesarian birth, and a subsequent pattern of either abuse, neglect, or marginal mothering.

In the light of the foregoing, it would be far too sweeping a generalisation to claim support for the demonstration of a connection between early and/or extended contact per se, and either early bonding or later attachment for either mother or child, or for subsequent child abuse. There is some evidence supporting a connection between breast feeding and early contact, but none between breast feeding and attachment, or other similar variables.

*Implications of the bonding doctrine*

These points should not be taken as an argument against one practical consequence of the bonding doctrine: that of encouraging parent/infant contact as soon as practicable. But it is *parent*/infant contact which should be facilitated; not simply maternal involvement, and this should be done in such a way that it is seen as part of an acquaintanceship process. It is regarded as inarguable today in Western culture that the process of emotional involvement with another requires knowledge of, and contact with, the other. In some ways, parenting is like the arranged marriage of the past; the individual with whom the relationship has to be made is outside the range of choice of the other individual concerned, and vice versa. Parents do not choose their children, and children do not choose their parents. It is remarkable that given this circumstance, there are as many success stories as there in fact are. It would quite clearly be astonishing if every case of parent/infant contact were one of "love at first sight" although there are no doubt instances of this, just as there are instances of it between adults, teenagers and so on. The argument advanced generally by the reviewers in this area (Myers, Sluckin et al and Lamb & Hwang) and held by the current author is that the humanising of the natal and neo-natal experience is a desirable goal in itself. This is indubitable: even further than this it is surely an absolute right which belongs to parents and to children alike. This right is based on the assumption that the beginning of the acquaintanceship process should be as benevolent and as facilitating of a future good relationship as possible. After all, when we wish people to fall in love with one another, it is sheer folly to provide circumstances which obstruct that end (the attractions of forbidden fruits notwithstanding). Since public, intensive and technological settings in which the individual has reduced autonomy and dignity are not conducive to forging personal relationships, we all have rights to settings and practices where these are minimised.

So why bother to examine the findings of the early contact studies in a critical way: why not leave well enough alone, content if the practical ends have been achieved in the changes to the birth-giving process? The answer to this question is complex, but falls into the general category of problems which arise when the "right" thing is done for the "wrong" reason. These are, firstly on the practical level, that there is always the possibility that the practices will be reversed if the original reasons are found to be wanting. If the level of debate remains at the "scientific" level of true/false, there is always the likelihood of disproval and consequent abandonment. There is a further problem also, of general belief and credibility in "scientific" enterprises and the construction of programmes around views subsequently found false in fact, and the manner in which this can eventually lead to the devaluation of research and enquiry.

These points are, however, not the most serious objections to the possible consequences of adherence to bonding theory because, beyond these (maybe) esoteric considerations lies the more pressing issue of negative effects. Although the doctrine implicitly works in the interests of the biological parents as noted above (p4), paradoxically it can work against biological parent/child groups. It can do this in different ways as suggested by a current Sydney investigation of children in care, being conducted by Fernandez (1985), who has found that both in assessing the need for placement of children, i.e. taking them away from their established home and subsequently, when considering restoration to home, the idea of successful or unsuccessful bonding to biological parents may be used in an ad hoc, ambiguous or unsubstantiated way. This may restrict the scope of such assessments.

Nor is this ambiguity and sweeping generalisability confined to the "simple practitioner", working at great distance from the centre of the debate around bonding, and possibly excusably ignorant of some of its implications. For instance, in the debate surrounding surrogate motherhood, Schutze (1985) notes that Klaus and Kennell (1984) propose that the habits of so-called primitive peoples with respect to maternity are the right ones. She notes further that the nostalgia for "pure nature" is retained in the concept of "maternal love" more than in any other concept, and that no other human relationship is as frequently understood by the analogy with animal behaviours. This impulse to generalise from animals and primitives for an ideal model of a human relationship must surely be tackled explicitly, as must the model quoted in the paper's introduction, presented by Winnicott and quoted by Kennell and Klaus, of appropriate mothering requiring a state described as "almost an illness". That there is no auspice in other realms of human interchange for seeing either the behaviour of animals, or primitive people as appropriate for civilisation is easily illustrated. One need think only of practices of remaining unclothed (as for animals and some primitives); and of varying practices and beliefs surrounding religion, marriage, initiation rites, menstruation, excretion and so on, to realise that the mere existence of a practice elsewhere is no guarantee of its acceptability in our society. Indeed, a dichotomy is often made between the "jungle" and "civilised man" when wishing to derogate some practice or another; beastly appropriateness is not in itself an argument for, or model of, human behaviour in most contexts. Nor is that of primitive peoples. Consideration of the reason that a certain practice is promoted needs to go further than its mere presence in the animal kingdom or among primitives.

Let us then be clear about the lack of desirability and advisability of subsuming the parent/child relationship under either romanticised concepts of noble savagery or a kind of emotional magic/illness on the one hand; or its variation of instinctual animality on the other.

Parenting may contain times and elements where sometimes one transcends oneself and reaches an elevated plane of experience, as may other engagements in human endeavours. Most often, however, it is very hard work calling on an enormously skilled repertoire of behaviours and of emotional tolerance and acceptance in human interchange, and requiring an extraordinary level of commitment. This falls differentially upon women because of the social construction of parenting as primarily a task of mothers rather than as a shared enterprise, not because women possess some magic reserves or behavioural repertoires not available to men. An intervention in parenting which heeds this point, is described in Myers (1982), where fathers as well as mothers are involved in giving the Brazelton Scale to their infants. Dolby, English

and Murray (in Oates, 1982) also report use of this technique, in Australia. This particular intervention may not be appropriate among all groups of parents; it does at least present an alternative and sharing model of parenting and is, therefore, a step in the right direction. Further information on paternal involvement in infant and child rearing, may be pursued in Russell (1983a; 1983b)(see Note 4). He offers both research data and personal practical experience in the task of shared caretaking and responsibility in children's development. Overall, the current formulation of mother love in terms of bonding can be seen to be not only conceptually, sociologically and empirically questionable, but carries forward the traditional sex role stereotypes of parenting: mother's love; and fathers? Implicitly, they love, but at one distance removed, released from the binding and highly conflictual ties of deep emotional involvement with their children, they remain essentially free to participate in the work place and channel their energies in the societally-sanctioned way; obtaining the economic and instrumental wherewithal to support the emotional expenditure on the home front. In this way, the very complex sociological questions suggested above can be side-stepped; and all with a "scientific" rationale supporting it. With almost one half of married women in the workforce in Australia, practical issues of child care as well as objective evidence, suggest that it would be far sounder to promote the concept of parent love rather than mother-love; and thus weaken the potential for bondage that the bonding doctrine contains within its formulation. Stripped of its overtones of female magic, parenting could then be seen in a clearer light.

*Note:*

*Two professionals at the "coal face" have asked for the right to reply to this paper. The Foundation for Child & Youth Studies encourages discussion of all issues and looks forward to a paper in reply during 1986.*

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*NOTE 1*

The full quote from Winnicott, used by Kennell and Klaus (1984, p 280-1) is reproduced below. It shows that the analogy of primary maternal preoccupation following birth with that of illness is well sustained. The manner in which it is used by Kennell and Klaus implies at least some sympathy with this approach.

> "It is my thesis that in the earliest phase we are dealing with a very special state of the mother, a psychological condition which deserves a name, such as Primary Maternal Preoccupation.
>
> I suggest that sufficient tribute has not yet been paid in our literature, or perhaps anywhere, to a special psychiatric condition of the mother, of which I would say the following things: It gradually develops and becomes a state of heightened sensitivity during, and especially toward the end of, the pregnancy. It lasts for a few weeks after the birth of the child. It is not easily remembered by mothers once they have recovered from it. I would go further and say that the memory mothers have of this state tends to become repressed.
>
> I do not believe that it is possible to understand the functioning of the mother at the very beginning of the infant's life without seeing that she must be able to reach this state of heightened sensitivity, almost an illness, and to recover from it. (I bring in the word "illness" because a woman must be healthy in order both to develop this state and to recover from it as the infant releases her. If the infant should die, the mother's state suddenly shows up as illness. The mother takes this risk.)
>
> The mother who develops this state ... provides a setting for the infant's constitution to begin to make itself evident, for the developmental tendencies to start to unfold, and for the infant to experience spontaneous movement and become the owner of the sensations that are appropriate to this early phase of life.
>
> Only if a mother is sensitized in the way I am describing can she feel herself into her infant's place, and so meet the infant's needs (Winnicott, 1958).

Although the illness model is criticised in the text of this article, it is, nevertheless, true that such models can work in favour of the mother. The most extreme case of this is the claim of psychiatric imbalance due to childbirth, as a defence against infanticide. Interestingly, when Kennel and Klaus commenced writing in this area, they were opposing obstetrical practices which treated birth as the surgical culmination of a nine-month illness (e.g. see Lamb & Hwang, 1982, p 2). It is ironic, therefore, to travel this long path away from physical illness, to arrive at a conceptualisation sympathetic with that of mental illness.

I feel it is as inappropriate to designate the post-partum period as a psychiatric condition as it is to designate, say, adolescence, or old age as such. Yet they are both also times of extra stress in the life cycle, which sometimes boils over into frank disturbance. It is even more inappropriate to take this process the next step and suggest that the adolescent, or the elderly generally are so unbalanced; yet this would be analogous with Winnicott's contention, as he speaks of the "special psychiatric

condition of the mother".

Klaus and Kennell's 1982 edition of their book offers a modified version compared with their 1976 account of the claims of the impact of early contact on later maternal behaviour. It is unarguable that their earlier, extreme claims were responsible for inducing enormous medical changes around birth-giving, especially in the USA. However, their reputation is now firmly established, and it is, therefore, disappointing to find that despite their 1982 modifications, that in 1984 and 1985 they are apparently endorsing as appropriate to mothering, illness and primitivity (carefully selected aspects thereof) concepts as noted in the text of this article.

*NOTE 2*

Readers will no doubt be aware of the extensive clinical experience of Herbert and of Rutter. They are widely known and highly respected British child psychiatrists, prominent in publications in both the theoretical and practical aspects of child problems, and other areas. As noted, Rutter offered the first sustained critique of attachment theories, just as now, Herbert offers a critique of the bonding approach. Myers, also highly sceptical of the bonding approach is another person with practice as well as research skills and additionally many of the studies referred to in this section have been contributed to by practitioners of varying kinds. The conflicting findings of these studies when taken as a whole, plus the involvement of respected clinicians in critiques in this area points to the fact that there is not a unified "clinical" or "practice" approach to the issues, as separate and distinct from that of "academic research". Thus, notwithstanding the subtitle of the this article ("a critical review of the research literature"), a dichotomy in attitudes between professionals from these two backgrounds.

*NOTE 3*

The area of child abuse is currently under scrutiny and there are important developments heralded for notification and treatment in NSW. Practitioners will be aware of legislation before the State Parliament on sexual abuse of children, and particularly of the proposed heavier penalties for those offenders in a position of "care, supervision or authority" over the child. The literature to date which addresses physical abuse of children has concentrated on maternal abuse, since there is an apparently higher incidence of physical abuse from mothers than from others. (There is evidence that this relationship does not hold if exposure to risk, i.e. time spent with the child, in controlled for.) However, with the growing awareness of the incidence of sexual abuse currently estimated at 12,000 children per year in NSW (with data indicating at least 90% of this is by males, and in 85% of reported cases, the offender being known to the child, often a family member - *Proceedings of State Parliament*, 12th November, 1985), there is a changing picture emerging of child abuse. The practices around maternal bonding, however one construes their success or otherwise, are thus bound to address only a proportion of the totality of child abuse.

*NOTE 4*

Those who believe that the situation has already changed with respect to paternal involvement should be aware that Russell puts the figure for "full" paternal care at around 1% - 2% of total parenting (personal communication). Full care implies preparedness for full responsibility and involvement in the total burden of parenting. Other studies with a less stringent criterion of involvement (closer to that of concerned helper rather than full participant) suggest a figure of 20% paternal involvement.